

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
 US Department of Commerce
 United States Patent and Trademark
 Office, PCT
 2011 South Clark Place Room
 CP2/5C24
 Arlington, VA 22202
 ETATS-UNIS D'AMERIQUE
 in its capacity as elected Office

Date of mailing (day/month/year) 15 November 2000 (15.11.00)	
International application No. PCT/FI00/00352	Applicant's or agent's file reference 6010PCOP
International filing date (day/month/year) 25 April 2000 (25.04.00)	Priority date (day/month/year) 26 April 1999 (26.04.99)
Applicant HASANEN, Kari et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
13 October 2000 (13.10.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Claudio Borton Telephone No.: (41-22) 338.83.38
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Claims

1. A method for monitoring and storing the properties of various components (1) of a paper/board or pulp and finishing/converting machine (20) and the changes taking place in them and/or the ambient conditions and the changes taking place in them, and for transmitting this data to the control unit (10) of the paper/board or pulp or finishing/converting machine (20) and/or to a separate data processing system (4), c h a r a c t e r i s e d in that in the component (1) is arranged a memory unit (2) accompanying it, in which can be written or which can be read electrically, by magnetisation or optically, in which memory unit are stored at least those properties (A) of the component (1) which affect the control values of a paper/board or pulp or finishing/converting machine (20) in connection with the manufacture or servicing of a component (1) in question before the component (1) is taken for installation into a paper/board or pulp or finishing/converting machine (20), or taken to be stored for later use, and that data transmission means (9b, 3b) are arranged for transmitting the data stored in the memory unit (2) to the control unit (10) of a paper/board or pulp or finishing/converting machine (20) and/or a separate data processing system (4).
2. A method as claimed in claim 1, c h a r a c t e r i s e d in that between the control unit (10) and the separate data processing system (4) are arranged data transmission means (11a, 11b) for transmitting data from the data processing system (4) to the control unit (10) and from the control unit (10) to the data processing system (4).
3. A method as claimed in claim 1 or 2, c h a r a c t e r i s e d in that the component (1) comprises at least one sensor (6, 7, 8) observing the state of the component (1) and/or its ambient conditions, which sensor is connected to the memory unit (2), and the data (B) obtained from which concerning changes in the component (1) and/or its ambient conditions are stored in the memory unit (2) in the component (1) in question.

4. A method as claimed in any of the claims 1 to 3, c h a r a c t e r i s e d in that in the memory unit (2) is continuously stored an amount of data (B) corresponding to a certain time interval which is obtained in an essentially uninterrupted manner from at least one observing sensor (6, 7, 8).

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5. A device for monitoring and storing the properties of various components (1) of a paper/board or pulp and finishing/converting machine (20) and the changes taking place in them and/or the ambient conditions and the changes taking place in them, and for transmitting this data to the control unit (10) of the
10 paper/board or pulp or finishing/converting machine (20) and/or to a separate data processing system (4), c h a r a c t e r i s e d in that in the component (1) is arranged a memory unit (2) accompanying it, in which can be written or which can be read electrically, by magnetisation or optically, in which memory unit can be stored at least those properties (A) of the component (1) which
15 affect the control values of a paper/board or pulp or finishing/converting machine (20) in connection with the manufacture or servicing of a component (1) in question before the component (1) is taken for installation into a paper/-board or pulp or finishing/converting machine (20), or taken to be stored for later use, and that data transmission means (9b, 3b) have been arranged for
20 transmitting the data stored in the memory unit (2) to the control unit (10) of a paper/board or pulp or finishing/converting machine (20) and/or a separate data processing system (4).

6. A device as claimed in claim 5, c h a r a c t e r i s e d in that between the
25 control unit (10) and the separate data processing system (4) have been arranged data transmission means (11a, 11b) by means of which data can be transmitted from the data processing system (4) to the control unit (10) and from the control unit (10) to the data processing system (4).

30 7. A device as claimed in claim 5 or 6, c h a r a c t e r i s e d in that in the component (1) has been arranged at least one sensor (6, 7, 8) observing the state of the component (1) and/or its ambient conditions, which sensor is connected to the memory unit (2), and the data (B) obtained from which

concerning changes in the component (1) and/or its ambient conditions has been arranged to be stored in the memory unit (2) in the component (1) in question.

- 5 8. A device as claimed in any of the claims 5 to 7, c h a r a t e r i s e d in that in the memory unit (2) can be continuously stored an amount of data (B), corresponding to a certain time interval, which is obtained in an essentially uninterrupted manner from at least one observing sensor (6, 7, 8).

PATENT COOPERATION TREATY

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INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 6010PCOP	<div style="display: flex; justify-content: space-between;"> <div style="width: 40%;"> FOR FURTHER ACTION </div> <div style="width: 60%; font-size: small;"> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below. </div> </div>	
International application No. PCT/FI 00/00352	International filing date (day/month/year) 25 April 2000	(Earliest) Priority Date (day/month/year) 26 April 1999
Applicant Valmet Corporation et al		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ Certain claims were found unsearchable (See Box I).

2. ☐ Unity of invention is lacking (See Box II).

3. ☐ The international application contains disclosure of a nucleotide and/or amino acid sequence listing and the international search was carried out on the basis of the sequence listing

☐ filed with the international application.
☐ furnished by the applicant separately from the international application,

☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.

☐ transcribed by this Authority.

4. With regard to the title, ☐ the text is approved as submitted by the applicant.
☒ the text has been established by this Authority to read as follows:

Method and device for monitoring and storing the properties of various components of a paper/board or pulp and finishing/converting machine.

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.
☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is:

Figure No. 2

☒ as suggested by the applicant.
☐ because the applicant failed to suggest a figure.
☐ because this figure better characterizes the invention.

☐ None of the figures.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 00/00352

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: G06K 19/07

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: G06K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EDOC, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4588880 A (P. HESSER), 13 May 1986 (13.05.86), column 4, line 49 - column 5, line 10, figure 1	1-2,5-6
A	--	3-4,7-8
X	US 4459590 A (D.C. SAULNIER), 10 July 1984 (10.07.84), abstract	1-2,5-6
A	--	3-4,7-8
X	WO 9118452 A1 (HENOCH, B.), 28 November 1991 (28.11.91), abstract	1-2,5-6
A	--	3-4,7-8

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

20 July 2000

Date of mailing of the international search report

26-07-2000

Name and mailing address of the ISA/

Swedish Patent Office

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI 00/00352

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FI 94562 B (ROBERTSSON, T.), 15 June 1995 (15.06.95), abstract --	1-8
A	US 4384288 A (C.A. WALTON), 17 May 1983 (17.05.83), figure 2, abstract --	1-8
A	US 4821198 A (K. TAKEUCHI ET AL), 11 April 1989 (11.04.89), figure 1, abstract -- -----	1-8

INTERNATIONAL SEARCH REPORT
Information on patent family members

02/12/99

International application No.
PCT/FI 00/00352

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4588880 A	13/05/86	DE 3234345 A EP 0103730 A	22/03/84 28/03/84
US 4459590 A	10/07/84	CA 1209710 A EP 0055639 A,B SE 0055639 T3 FR 2494935 A,B	12/08/86 07/07/82 28/05/82
WO 9118452 A1	28/11/91	AT 146318 T DE 69123576 D,T EP 0528962 A,B SE 500030 C SE 9001729 A US 5379042 A	15/12/96 26/06/97 03/03/93 21/03/94 15/11/91 03/01/95
FI 94562 B	15/06/95	AU 5422794 A FI 925077 A WO 9411846 A	08/06/94 10/05/94 26/05/94
US 4384288 A	17/05/83	NONE	
US 4821198 A	11/04/89	DE 3718215 A,C,R GB 2191026 A,B JP 62282848 A	03/12/87 02/12/87 08/12/87

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 6010PCOP	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/FI00/00352	International filing date (day/month/year) 25.04.2000	Priority date (day/month/year) 26.04.1999
International Patent Classification (IPC) or national classification and IPC ₇ G06K 19/07		
Applicant METSO PAPER INC. et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 13.10.2000	Date of completion of this report 23.07.2001
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. 08-667 72 88	Authorized officer Helena Rennermalm / MRo Telephone No. 08-782 25 00

Form PCT/IPEA/409 (cover sheet) (January 1998)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FI00/00352

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
 pages 1-6 , as originally filed
 pages _____ , filed with the demand
 pages _____ , filed with the letter of _____
- ☒ the claims:
 pages _____ , as originally filed
 pages _____ , as amended (together with any statement) under article 19
 pages _____ , filed with the demand
 pages 7-9 , filed with the letter of 17.04.2001
- ☒ the drawings:
 pages 1 , as originally filed
 pages _____ , filed with the demand
 pages _____ , filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages _____ , as originally filed
 pages _____ , filed with the demand
 pages _____ , filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheet/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2 (c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FI00/00352

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	<u>1-9</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-9</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-9</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The documents cited in the International Search Report represent the prior art. The claimed invention stated in claims 1-9 is not considered to be anticipated by these documents. None of the documents or any relevant combination of them reveal a method and device for monitoring and storing the properties of various components of a paper/board or pulp and finishing/converting machine as described by these claims.

According to the arguments stated above, the invention claimed in claims 1-9 is novel, considered to involve an inventive step and have industrial applicability

Claims

1. A method in a machine (20) for producing or finishing/converting paper/board or pulp, the method comprising
 - 5 - monitoring and storing properties of various components of the machine (20)
 - monitoring and storing the changes taking place in the properties and/or the ambient conditions and the changes taking place in them
 - transmitting this stored data to the control unit (10) of the machine (20) and/or to a separate data processing system (4),
- 10 characterised in that the method further comprises the steps of
 - (i) arranging in the component (1), a memory unit (2) which accompanies the component (1) when the component (1) is a functional part of the machine (20), in which memory unit (2) can be written and which can be read electrically, by magnetisation or optically;
 - 15 (ii) storing in the memory unit at least those properties (A) of the component (1) which effect on the control values of the machine (20), said storing taking place in connection with the manufacture or servicing of the component (1) in question before the component (1) is taken for installation into the paper/board or pulp or finishing/converting machine (20), or taken
 - 20 to be stored for later use as a functional part of the machine (20);
 - (iii) transmitting the data stored in the memory unit (2) to the control unit (10) of the paper/board or pulp or finishing/converting machine (20) and/or the separate data processing system (4) which is used for serving data to the control unit (10),
- 25
2. A method as claimed in claim 1, characterised in that between the control unit (10) and the separate data processing system (4) are arranged data transmission means (11a, 11b) for transmitting data from the data processing system (4) to the control unit (10) and from the control unit (10) to the
- 30 data processing system (4).
3. A method as claimed in claim 1 or 2, characterised in that the component (1) comprises at least one sensor (6, 7, 8) observing the state of the com-

ponent (1) and/or its ambient conditions, which sensor is connected to the memory unit (2), and the data (B) obtained from which concerning changes in the component (1) and/or its ambient conditions are stored in the memory unit (2) in the component (1) in question.

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4. A method as claimed in any of the claims 1 to 3, characterised in that in the memory unit (2) is continuously stored an amount of data (B) corresponding to a certain time interval which is obtained in an essentially uninterrupted manner from at least one observing sensor (6, 7, 8).

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5. A device for monitoring and storing the properties of various components (1) of a paper/board or pulp and finishing/converting machine (20) and the changes taking place in them and/or the ambient conditions and the changes taking place in them, and for transmitting this data to the control unit (10) of the paper/board or pulp or finishing/converting machine (20) and/or to a separate data processing system (4), characterised in that in the component (1), which is a functional part of the machine (20), is arranged a memory unit (2) accompanying it, in which can be written and which can be read electrically, by magnetisation or optically, in which memory unit can be stored at least those properties (A) of the component (1) which effect on the control values of the paper/board or pulp or finishing/converting machine (20) in connection with the manufacture or servicing of the component (1) in question before the component (1) is taken for installation into the paper/board or pulp or finishing/converting machine (20), or taken to be stored for later use as a functional part of the machine (20), and that data transmission means (9b, 3b) have been arranged for transmitting the data stored in the memory unit (2) to the control unit (10) of the paper/board or pulp or finishing/converting machine (20) and/or the separate data processing system (4) which is used for serving data to the control unit (10).

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6. A device as claimed in claim 5, characterised in that between the control unit (10) and the separate data processing system (4) have been arranged data transmission means (11a, 11b) by means of which data can be

transmitted from the data processing system (4) to the control unit (10) and from the control unit (10) to the data processing system (4).

7. A device as claimed in claim 5 or 6, c h a r a c t e r i s e d in that in the com-
5 ponent (1) has been arranged at least one sensor (6, 7, 8) observing the state of the component (1) and/or its ambient conditions, which sensor is connected to the memory unit (2), and the data (B) obtained from which concerning changes in the component (1) and/or its ambient conditions has been arranged to be stored in the memory unit (2) in the component (1) in question.
- 10 8. A device as claimed in any of the claims 5 to 7, c h a r a t e r i s e d in that in the component (1) is a roll and the information to be stored in the memory unit (2) which accompanies the roll concerns at least one of the following: diameter of the roll, weight of the roll, deflection of the mantle of the roll, the composition
15 of the surface material of the mantle of the roll, surface roughness of the roll, hours of operation of the roll and operations carried out during the servicing of the roll.
- 20 9. A device as claimed in any of the claims 5 to 8, c h a r a t e r i s e d in that in the memory unit (2) can be continuously stored an amount of data (B), corresponding to a certain time interval, which is obtained in an essentially uninterrupted manner from at least one observing sensor (6, 7, 8).